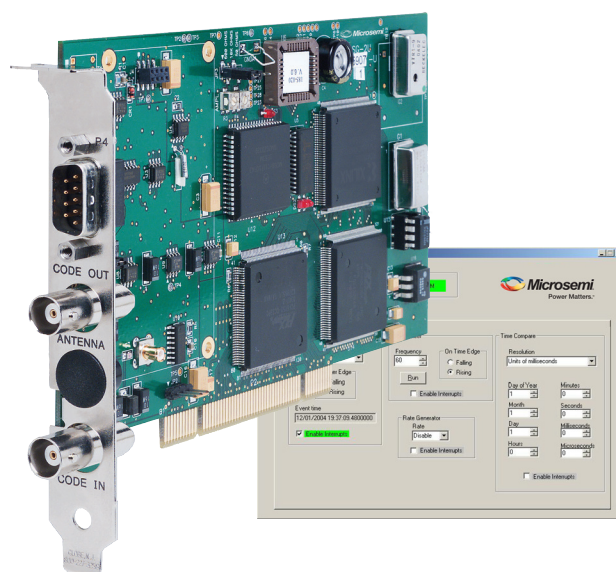


# PCI-SG 2U

PCI-SG 2U will be discontinued October 2, 2017.

## Multi-Function Time and Frequency PCI Plug-In Card



### Features

- IRIG A, B, or 1 PPS input
- IRIG B or 1 PPS output
- 1 PPS to 1 MPPS programmable rate synthesizer output/interrupt
- 1, 5, and 10 MPPS rate generator output/interrupt
- External event input/interrupt
- Programmable time-compare input/interrupt
- Real-time clock backup
- Windows control panel interface software
- Optional Windows software developer's kit
- Zero-latency time reads
- 3.3 V and 5.0 V universal signaling

The PCI-SG 2U provides precise time to computers that have PCI expansion slots. The time is derived from an IRIG A or B time code input or the internal oscillator in the standalone generator mode. The frequency of the internal oscillator is precisely disciplined to the external synchronization input. Synchronization to an external 1 PPS is also possible.

Time, microseconds through years, and status information are supplied on demand over the 32-bit PCI bus. The PCI-SG 2U also provides a 1 PPS pulse rate, a programmable time-compare register, a programmable frequency pulse rate, an external event time capture, and an IRIG B serial time code output.

Rear panel BNC connectors are used for the IRIG code input/output. A rear panel-mounted multipin connector provides the 1 PPS pulse rate output, the programmable pulse rate output, the external event input signal, and the input/output connections for the RS-422 versions of the input/output IRIG time code. The analog input code can also be configured with various input impedance choices.

The PCI-SG 2U automatically supports both 3.3 V and 5.0 V signaling of the PCI bus. Information provided over the PCI bus includes time, status, and the external event occurrence time. Also provided are interrupts generated by the programmable rate generator, the rate synthesizer, the external event input occurrence, and the time-compare occurrence. Depending upon the operating mode, the hours offset from UTC, leap second, year, and daylight saving time can be programmed. An on-board, capacitor-powered clock maintains time during a power failure condition for up to 48 hours.

Integration of the module is easily facilitated with the optional driver developer's kit for Windows.

# PCI-SG 2U

## Multi-Function Time and Frequency PCI Plug-In Card

### Specifications

#### Synchronized Generator Mode

- Analog input code: IRIG A or B
  - Modulation ratio 2:1 to 5:1
  - Input amplitude 0.5 V<sub>PP</sub>–10 V<sub>PP</sub>
  - Impedance 10K, 600 Ω, or 50 Ω to GND, selectable
  - Connector BNC
  - Timing accuracy 3 μs
- RS-422 input code: IRIG A or B
- Timing accuracy 1 μs
- Connector 9-pin D subminiature, selectable to BNC
- Error bypass Factory set to three frames
- External 1 PPS input\* 1 μs timing accuracy (uses external event input port)

\*When external 1 PPS is used as sync input, the external event is not available.

#### Standalone Generator Mode

- Allows the user to preset, start, and stop the PCI-SG 2U over the PCI bus.

#### Electrical

- IRIG B serial code output (analog)
  - Amplitude 3 V<sub>PP</sub> into 600 Ω
  - Ratio 3:1
  - Connector BNC
- IRIG B serial code output (RS-422)
  - Amplitude RS-422 levels
  - Input termination Selectable, 120 Ω or none
  - Connector 9-pin D subminiature, selectable to BNC (ACMOS)
- Oscillator
  - Accuracy 5x10<sup>-8</sup> (when disciplined to IRIG code)
  - Stability 2.5 PPM, 0 °C to 50 °C, unlocked
- 1 PPS pulse rate output
  - Amplitude 0 VDC–5 VDC,\*\* positive edge on time, 50% duty cycle
  - Connector 9-pin D subminiature, selectable to BNC

- Pulse rate generator output
  - Rates 1 PPS, 10 PPS, 100 PPS, 1 kPPS, 10 kPPS, 100 kPPS, 1 MPPS, 5 MPPS, 10 MPPS
  - Outputs Interrupt and pulse, 0 VDC–5 VDC\*\*
  - Connector 9-pin D subminiature, selectable to BNC
- Pulse rate synthesizer output
  - Rates 1 PPS to 1 MPPS, step size 1 PPS
  - Outputs Interrupt and pulse, 0 VDC–5 VDC\*\*
  - Connector 9-pin D subminiature, selectable to BNC
- External event time capture
  - Resolution Hundreds nanoseconds through thousands of years
  - Output Interrupt
  - Event input Selectable positive or negative edge of 2 VDC–5 VDC pulse into approximately 2 kΩ
  - Connector 9-pin D subminiature
- Time compare output
  - Resolution Hundreds nanoseconds through thousands of years
  - Outputs Interrupt and pulse at compare time
  - Amplitude 5 VDC\*\* on compare
  - Connector 9-pin D subminiature
- Real-time clock
  - Bus request resolution Hundreds nanoseconds
  - Latency Zero
  - Time format BCD

#### Mechanical/Environmental

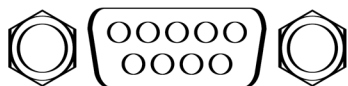
- Connector
    - Code out BNC
    - Code in BNC
    - P4-module I/O 9-pin D
- (Diagram)

\*\*VDC outputs have ACMOS levels.

# PCI-SG 2U

## Multi-Function Time and Frequency PCI Plug-In Card

### Pin Diagram



### Pin Description

Pin	Direction	Signal
1	Input	External event/1 PPS
2	N/A	GND
3	Input +	DC reference code or TTL
4	Input -	DC reference code
5	Output	1 PPS
6	Selectable	Time-compare or rate synthesizer
7	Output	Rate generator
8	Output +	DC generator code or TTL
9	Output -	DC generator code

- PCI local bus™ (specification)
  - 2.2-compliant
  - 2.3 compatible: does not provide interrupts at system start-up, and therefore does not support the PCI Local Bus Specification Revision 2.3 feature of software disable of interrupts at start-up
  - PCI-X compatible
  - Not compatible with dual-core processors
- Size: Single-width (4.2" x 6.875")
- Device type: PCI target, 32-bit, 5 V universal signaling
- Data transfer: Byte, half-word, word
- Power: 12 VDC at 100 mA  
-12 VDC at 50 mA  
5 VDC at 1300 mA
- Operating temp.: 0 °C to 50 °C
- Storage temp.: -17 °C to 85 °C
- Humidity: To 95%, noncondensing
- Certifications
  - FCC: Part 15, Subpart B
  - RoHS 5/6: Emissions EN 55022
- Immunity: EN 55024

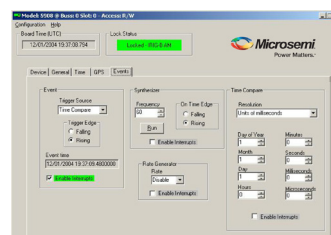
- RoHS compliance
  - EU RoHS
  - China RoHS
- Real-time clock

On-board, capacitor-powered clock maintains time during power fail conditions for up to 48 hours

Complete specifications can be found in the manual located at [microsemi.com](http://microsemi.com).

### Software

The PCI-SG 2U includes the Microsemi PCI\_Panel application program for Windows NT/2000/XP. The PCI-SG 2U card status, adjust board configuration, and output parameters can be reviewed using this program. The program can also operate as a background task, keeping the host computer clock synchronized to the PCI-SG 2U card.



### Product Includes

PCI-SG 2U time and frequency card, PCI\_Panel application program, Windows .dll and .sys drivers, manual, 9-pin D connector kit, and one-year warranty.

### Ordering Information

560-5907-U Multi-Function Time and Frequency PCI Plug-in Card

Connector accessories that can be ordered:

- D Connector to x5-BNCs adapter (provides TC in, TC out, 1 PPS out, event in, periodic out) BC11576-1000.
- D Connector to x5-BNCs adapter with 1 PPS in (provides TC in, TC out, 1 PPS in, 1 PPS out, event in) BC11576-9860115.
- D Connector to x6-BNCs adapter (provides TC in, TC out, 1 PPS in, 1 PPS out, event in, DCLS out) PCI-BNC-CC.

Contact Microsemi for pricing and availability.



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